In order to solve the problems, (1) the invention is characterized in that, in an electrode for a cell having a power generating element in which one or more positive electrodes and one or more negative electrodes are alternately closely arranged via electrolyte retaining layers, a groove is formed in a face which is a surface of at least one of the electrodes, the face being opposed to the other electrode via an electrolyte retaining layer, at least one end of the groove reaching an end portion of the electrode. According to means (1), a groove is formed in an opposed face of at least one of the electrodes. Therefore, a poured electrolyte solution permeates not only into the electrolyte retaining layer through a side face of the power generating element, but also directly into the power generating element through the groove, so that the electrolyte solution can permeate therethrough into the electrolyte retaining layer and the active material of the electrode. As a result, the diffusion rate of the electrolyte solution is improved. Furthermore, (2) the electrode is characterized in that the electrolyte retaining layers are separators. Furthermore, (3) it is characterized in that the groove of (1) above has a portion of a depth of 10 μm or more. Alternatively, (4) it is characterized in that, in the electrode of means (1) above, a sectional area of the formed groove is not smaller than 0.2% and not larger than 10% of a total sectional area of a mixture layer in which the groove is formed. Alternatively, (5) it is characterized in that, in the electrode of means (1) above, the formed groove

is linear.

Alternatively, (6) it is characterized in that, in the electrode of means (1) above, the formed groove in the electrode is configured by at least two groove groups of a groove group consisting of a series of grooves which are directed in one direction in an electrode face, and a groove group consisting of a series of grooves which are directed in a direction different from the above direction.

Alternatively, (7) the cell is characterized in that the cell having a power generating element in which one or more positive electrodes and one or more negative electrodes are alternately closely arranged via electrolyte retaining layers comprises the electrodes of one of means (1) to (6) above which is characterized in that a groove is formed in a face which is a surface of at least one of the electrodes, the face being opposed to the other electrode via an electrolyte retaining layer, at least one end of the groove reaching an end portion of the electrode.

Alternatively, (8) it is characterized in that, in the cell of means (7) above, the electrolyte retaining layers are separators. Furthermore, (9) it is characterized in that, in the cell of means (7) above, the groove has a portion of a depth of 10 μm or more. Furthermore, (10) it is characterized in that, in the cell of means (7) above, a sectional area of the formed groove is not smaller than 0.2% and not larger than 10% of a total sectional area of a mixture layer in which the groove is formed. Furthermore, (11) it is characterized in

that, in the cell of means (7) above, the formed groove is linear. Furthermore, (12) it is characterized in that, in the cell of means (7) above, the formed groove in the electrode is configured by at least two groove groups of a groove group consisting of a series of grooves which are directed in one direction in an electrode face, and a groove group consisting of a series of grooves which are directed in a direction different from the above direction.

Alternatively, (13) it is characterized in that, in a cell which is configured by a positive electrode, a negative electrode, and an electrolyte retaining layer, at least one of interfaces each formed by two of the positive electrode, the negative electrode, and the electrolyte retaining layer is bonded by an adhesive layer containing fine particles, and a groove is formed in a face which is a surface of at least one of the electrodes, the face being opposed to the other electrode via the electrolyte retaining layer, at least one end of the groove reaching an end portion of the electrode. Furthermore, (14) it is characterized in that, in the cell of means (13) above, the electrolyte retaining layers are separators. Furthermore, (15) it is characterized in that, in the cell of means (13) above, the groove has a portion of a depth of 10 μm or more. Furthermore, (16) it is characterized in that, in the cell of means (13) above, a sectional area of the formed groove is not smaller than 0.2% and not larger than 10% of a total sectional area of a mixture layer in which the groove is formed. Furthermore, (17) it is char-

acterized in that, in the cell of means (13) above, the formed groove is linear. Furthermore, (18) it is characterized in that, in the cell of the means above, the formed groove in the electrode is configured by at least two groove groups of a groove group consisting of a series of grooves which are directed in one direction in an electrode face, and a groove group consisting of a series of grooves which are directed in a direction different from the above direction.

Alternatively, (19) it is characterized in that, in the cell of means (7) above, the positive and negative electrodes are fixed by the electrolyte retaining layer interposed between the electrodes. Furthermore, (20) it is characterized in that, in the cell of means (7) above, the power generating element is housed in a cell container in which a laminate sheet of a metal and a plastic is a component. Alternatively, (21) it is characterized in that, in the cell of means (13) above, the power generating element is housed in a cell container in which a laminate sheet of a metal and a plastic is a component.

Alternatively, (22) it is characterized in that the electrode is produced by a grooving method and a technique of the method in which a rotating mechanism wherein a projection is formed on a curved surface of a roll is provided, an electrode plate that is moved so as to be simultaneously contacted with the roll is disposed, and, when the groove is contacted with the electrode plate, a groove is formed, and which is characterized in that a work is conducted by pressing the electrode

plate by the roll. Furthermore, (23) it is characterized in that the electrode of means (22) above is produced by a grooving method and a technique of the method in which a rotating mechanism wherein a projection is formed on a curved surface of a roll is provided, an electrode plate that is moved so as to be simultaneously contacted with the roll is disposed, and, when the groove is contacted with the electrode plate, a groove is formed, and which is characterized in that a grooving work is conducted by pressing the electrode plate by the roll, and also by heating the electrode plate by a heating mechanism. Furthermore, (24) it is characterized in that the electrode of means (22) above is produced by a grooving method and a technique of the method in which a rotating mechanism wherein a projection is formed on a curved surface of a roll is provided, an electrode that is moved so as to be simultaneously contacted with the roll is disposed, and, when the groove is contacted with the electrode, a groove is formed, and which is characterized in that, when the electrode is pressed by the roll, a depth of the projection and a pressing force are adjusted so that a portion of the roll surface other than the projection is contacted with the electrode.

In a cell of the prior art, the groove shape and the number of grooves in the face of the active material, and the like which are optimum from the viewpoint of the evaporation rate are not known. For the groove shape, the number of grooves, and the like, therefore, influence on the drying time has been studied. As a result, the shape, the number of

grooves, and the like which are preferable are revealed, and the drying time can be shortened by the means described above. It has been confirmed that a groove produced by such means can function also as a groove for impregnation with an electrolyte solution.

The means described above correspond to a cell including a production step of evaporating a solvent or that of impregnating with (pouring) an electrolyte solution because of the above-mentioned reason, and is effective particularly in a cell of the bond type as described above. In the view points of drying of cell members and pouring of an electrolyte solution, the means are effective also in a cell of another type. Irrespective of whether bonding is conducted or not, the means can be applied to: an organic electrolyte solution lithium ion cell, a solid electrolyte lithium ion cell, a gel electrolyte lithium ion cell, and other lithium cells which are non-aqueous electrolyte cells; primary and secondary cells which uses an aqueous electrolyte solution; etc.